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Effects of Canagliflozin on Cardiovascular Biomarkers in Older Adults With Type 2 Diabetes



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ABSTRACT

BACKGROUND Sodium glucose co-transporter 2 inhibitors may reduce cardiovascular and heart failure risk in patients

Sodium glucose co-transporter 2 (SGLT2) inhibitors are a new class of diabetes drugs that lower blood glucose in patients with type 2 diabetes mellitus (T2DM) through increased urinary excretion of glucose (1). SGLT2 inhibitors may have other cardiometabolic benefits; they cause natriuresis, a mild osmotic diuresis, and a net caloric loss that contribute to reductions in body weight and blood pressure (BP) (1). Additionally, increased delivery of sodium to the macula densa helps to restore normal glomerular pressure, which, in turn, results in improved renal function over the longer term (2).

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SGLT2 inhibitors have recently been studied in large cardiovascular outcomes trials for evaluating the cardiovascular effects of newer T2DM agents (3). In the EMPA-REG OUTCOME (Empagliflozin Cardiovascular Outcome Event Trial in Type 2 Diabetes Mellitus Patients) study, treatment with empagliflozin resulted in reduction in the risk for major

this study, we sought to assess the longitudinal changes in the concentrations of NT-proBNP, hsTnI, sST2, and galectin-3 in older patients with T2DM randomized to receive canagliflozin or placebo in a 104-week study (19,20) to gain insights into the mechanisms of the potential beneficial cardiovascular effect of SGLT2 inhibitors.

METHODS

PATIENTS. This post hoc, exploratory analysis was conducted using stored serum samples from a 104-week, randomized, double-blind, placebo-controlled study (NCT01106651) that evaluated the efficacy and safety of canagliflozin 100 and 300 mg in older patients with T2DM. Full study design and key inclusion/exclusion criteria have previously been reported (19,20). Briefly, eligible patients were adults with T2DM who were 55 to 80 years of age, had

ABBREVIATIONS AND ACRONYMS

- BP = blood pressure
- CI = confidence interval
- CV = coefficients of variation
- eGFR = estimated glomerular filtration rate
- hsTnI = high-sensitivity troponin I
- NT-proBNP = N-terminal pro-B-type natriuretic peptide
- SGLT2 = sodium glucose co-transporter 2
- sST2 = soluble ST2
- T2DM = type 2 diabetes mellitus